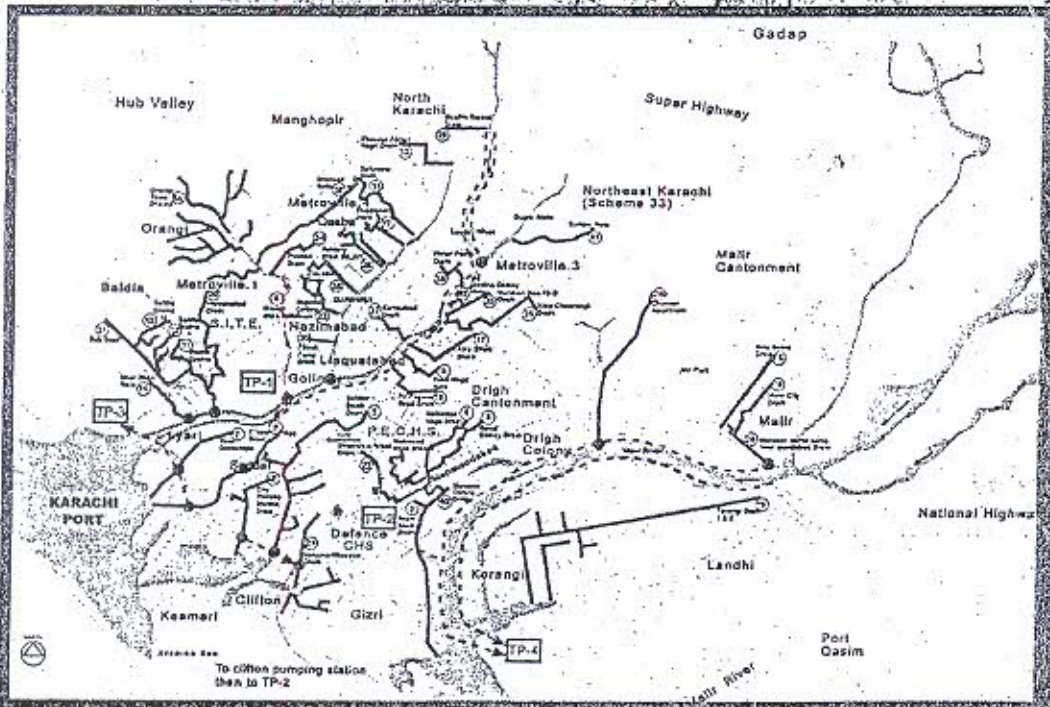


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Government Of Pakistan
PLANNING COMMISSION
FORM PC-I (SOCIAL SECTOR)

264

GREATER KARACHI
SEWERAGE PLAN (S-III)



CITY DISTRICT GOVERNMENT KARACHI (CDGK)



KARACHI WATER & SEWERAGE BOARD

**GOVERNMENT OF PAKISTAN
PLANNING COMMISSION**

PC-I FORM

(SOCIAL SECTOR)

1)	Name of Project:	Greater Karachi Sewerage Plan (S-III)
2)	Location	Karachi District
3)	Authority responsible for:	
	i) Sponsoring	Local Government Department Government of Sindh.
	ii) Execution	Karachi Water & Sewerage Board, [KW&SB]
	iii) Operation and Maintenance	Karachi Water & Sewerage Board [KW&SB]
	iv) Concerned Federal Ministry	Ministry of Local Governments [GoP], Ministry of Finance [GoP]
4)	Plan Provision	Government of Sindh [GoS] & Government of Pakistan 50% : 50%
5)	Project objectives and its relationship with Sectoral objectives	<p>Greater Karachi Sewerage Plan (S-III) is geared towards improving environmental & sanitation conditions of Karachi through a well integrated system of collection, treatment and disposal of sewage. Project objectives are</p> <ul style="list-style-type: none"> - to protect & improve environmental conditions in city. - to maintain ecological balance. - to save the citizens from health hazards. <p>Project linkage with sector: The project falls in social sector and is a public service development work which directly or indirectly influence living in health conditions of citizens. The project is compatible with targets set out for achieving Millennium Development Goals (MDGs). Little progress has been made in this sector which led to the growing backlog. Efforts were made by the KW&SB to recover from this backlog such as</p> <ul style="list-style-type: none"> • Development of master plan for sewerage, S-I and S-II projects in the recent past and • Preparation of a draft sewerage policy. <p>The sanitation needs of the metropolis could not be met due to lack of resources. The population of Karachi is rapidly increasing and with the advent of K-III project, there is a dire need to address these needs on a war footing. S-III will address shortfall in sewerage system and treatment capacities & most importantly meet the additional needs of the 60 mgd sewage input generated by the recently inaugurated 100 mgd K-III project. These need to be addressed in the proposed plan of S-III project in this PC-1 for</p> <p>a) Construction of sewage treatment plant at Korangi and other places.</p>

		<ul style="list-style-type: none"> b) Extension of Lyari interceptor up to North Karachi & construction of trunk sewers. c) Improvement and enhancement of capacity of Existing treatment plants. d) Improvement works for existing drains e) Improvement works for enhancing inflow at existing treatment plants. <p>The project is also in line with the directives of the Deputy Chairman, Planning Commission that Federal Governments should develop and implement the projects to clean polluted rivers with priority to rivers like Lyari in Karachi. Due to immediate nature of problems in water supply, an enormous backlog has accumulated over years for want of expansion of sewerage system. It is essential to start S-III to protect environment, maintain ecological balance and save the metropolitan citizens from health hazards.</p>
6)	<p>Description and justification and technical parameters</p>	<p>Karachi with estimated population of 14 million, needs an immediate attention to water supply and consequent drainage requirements. Presently, Karachi sewage is going into sea, partially untreated, through the outfalls/nallas (natural drains), Lyari river, Malir river. Thousand of households living in riverbeds & nallahs are subject to severe flooding in heavy monsoons. In 1977 thirty lives were lost whereas 1967 saw loss of hundreds of lives in the urban areas with substantial damage to industrial, commercial and residential property. Those worst effected are the poor. The risk of flooding in the lower reaches of the Lyari River is great. Built-up areas that are repeatedly subject to substantial flooding.</p> <p>While S-I, S-II projects in past under Greater Karachi Sewerage Plan S-I (KSDP-I) saw to some extent improvement in sewerage & environmental conditions in city, the shortfall in sewage collection, conveyance and treatment systems in Karachi persists and needs to be readily addressed. Studies on Lyari and Malir rivers Pollution Study revealed that quality of the effluent is not according to EPA requirements and pose a potential health risk to humans and severe degradation of the environment. In contravention to the Factories Act of 1934, EPA Act 1997, industrial & commercial wastes are being discharged into nearest channel/river instead of discharging pre-treated waste into the network.</p> <p>S-III project would help alleviate these concerns. The S-III project components are planned to be implemented in two stages. This PC-1 refers to Stage-1 only which is expected to be completed in 4 Years.</p> <p>A) Phase - I</p> <ul style="list-style-type: none"> a) Components which relate to Malir Basin Schemes include a series of interceptor drains along Malir river, new Korangi Sewage

Treatment Plant (TP-IV), connection of Nallahs to Interceptors through intake chambers, new trunk sewers,

b) Components which relate to Lyari Basin
Extension of Lyari River Interceptors, connection of nallahs to Interceptor through intake chambers.

B) Phase-II Components

Remaining nallahs to have interceptors and connected to Malir / Lyari Interceptors to separate storm sewer, Construction of more Treatment Plants.

S-III also plans to address critical and deteriorating environmental condition of the city, its beaches and hygienic conditions. Due low short treatment capacity, metropolitan beaches have become cess pools. It is essential to start S-III to protect environment, maintain ecological balance and save the citizens of Karachi from health hazards as 2nd 100 MGD K-III project has become operational and study for K-IV already initiated. K-III would contribute about 60 mgd in the already short capacitated sewage system. All drains, nallahs and rivers carrying sewage to be directed towards treatment plants before being discharged into the sea.

Separation of the drainage and sewerage systems, considering ground realities and accumulated backlog; as total separation of the drainage and sewers are practically difficult. For the large number of Katchi Abadis their discharges need to be regulated through sewage network & integrated interceptor drains. For unserved areas, these should ideally be linked to KWSB trunks sewers and interceptors. The break up of sewage generated in the city is:

Sewage generated	435 mgd
Sewage treatment capacity	151 mgd
SActual ewage treated	90 mgd
Sewage bypassing system	345 mgd
Shortfall in treatment cap.	284 mgd

It is proposed to convey and treat the domestic and industrial sewage separately. By design storm water will be kept out of the system through gated structures. During storm the conveyance system will be bypassed and the combined flow of storm and sewage, substantially diluted, will directly go to the sea.

Quantity: Priority of supplying water to consumers has kept sewerage sector in background leading to a backlog in system. Lack of conveyance capacity has led to sewage flows through Malir & Lyari rivers including other nallahs/drains. This un-warranted practice must be curbed & resources be allocated to separate the domestic, industrial and storm water disposal.

		Total quantity of 375 mgd of domestic and toxic industrial wastewater was generated before commissioning of K-III project while with 3 sewage treatment plants in Karachi, the design capacity is 151 mgd but actually only 90 mgd is being treated. Remaining untreated sewage is disposed off in the sea through 7 nullahs including Lyari and Malir rivers.
7)	Capital cost estimates	Based on current market prices and prevailing rates (as of May 2006) capital cost of the project comes to Rs: 7.982 Billion which is distributed in the 4 years of the design and construction plan.
8)	Annual operating and maintenance cost after completion of the Project	Annual Operating and Maintenance [O&M] cost is estimated to be 5% of the capital cost of the project which comes to Rs: 399 million/year.
9)	Demand supply analysis	<p>With the induction of 100MGD K-III project, total present water supply to Karachi would approach 629 MGD. Out of this supply about 70% of the water supplied to the city returns as sewage. A total quantity of about 435 mgd of domestic and toxic industrial wastewater is estimated at present. There are 3 sewage treatment plants in Karachi. The total designed capacity of these 3 treatment plants is 151 mgd, but currently these are able to treat only 90 mgd.</p> <p>K-III project would add about 70 mgd into the sewage and wastewater disposal system thus overloading it. S-III project is conceived to cater for this shortfall under this scheme. The proposed project [S-III] is planned to channelize the domestic sewage through collectors and interceptors towards the treatment plants before being discharged into the sea – thus cleaning the beaches and sea front of Karachi metropolis. In most of the areas in the city the system is more than 30 to 35 years old and has over lived designed life which is 25 to 30 years.</p> <p>City sewage generation and treatment capacity balance is as follows:</p> <p>Existing:</p> <ul style="list-style-type: none"> ▪ Sewage generated 435 mgd (including additional 60 mgd Sewage due to K-III project) ▪ Sewage treatment capacity 151 mgd ▪ Sewage treated actually 90 mgd ▪ Sewage bypassing system 345 mgd ▪ Shortfall in treatment cap. 284 mgd <p>Proposed: With S-III Project (Phase-I)</p> <ul style="list-style-type: none"> ▪ Sewage generated 435 mgd ▪ Upgradation of existing sewage treatment plant: 300 mgd (Existing 150 mgd enhanced to 300 mgd). ▪ New TP-IV 200 mgd <p>This will meet the present sewage load. However, for future timely introduction of Phase-II of the S-III project will be required.</p>

